WHAT IS CLAIMED IS:

1. A photomask including an isolated light-shielding pattern formed on a transparent substrate that is transparent to a light source, characterized in that

the light-shielding pattern is formed from a light-shielding film region formed from a light-shielding film, and a phase shift region having a phase difference with respect to a light-transmitting region of the transparent substrate which has no light-shielding pattern, and

a width of the phase shift region is set such that a light-shielding property of the phase shift region becomes at least about the same as that of the light-shielding film having the same width.

2. The photomask according to claim 1, characterized in that

a contour of the light-shielding film region is the same as a feature of the light-shielding pattern, and

the phase shift region is provided inside the light-shielding film region.

3. The photomask according to claim 1, characterized in that the phase shift region is provided at least at or inside a corner of the light-shielding pattern, or at or inside an end of the light-shielding pattern.

4. The photomask according to claim 1, characterized in that, provided that the phase shift region has a width Wm, Wm . (0.4 × λ/NA) × M (where λ is a wavelength of the light source, NA is a numerical aperture of a reduction projection optical system of an aligner, and M is a magnification of the reduction projection optical system).

5. The photomask according to claim 1, characterized in that, provided that the light-shielding pattern has a width Lm, Lm . (0.8 × λ/NA) × M.

6. The photomask according to claim 5, characterized in that, provided that the phase shift region has a width Wm, Wm . ((0.8 × λ/NA) × M) – Lm and Wm . Lm.

7. The photomask according to claim 5, characterized in that, provided that the phase shift region has a width Wm, 0.5 × ((((0.8 × λ/NA) × M) – Lm)/2) . Wm . 1.5 × ((((0.8 × λ/NA) × M) – Lm)/2) and Wm . Lm.

8. The photomask according to claim 1, characterized in that the phase difference of the phase shift region with respect to the light-transmitting region is (170 + 360 × n) to (190 + 360 × n) degrees (where n is an integer) with

respect to a wavelength of the light source.

9. The photomask according to claim 1, characterized in that the phase difference of the phase shift region with respect to the light-transmitting region is provided by etching at least one of a portion corresponding to the light-transmitting region and a portion corresponding to the phase-shift region in the transparent substrate.

10. The photomask according to claim 1, characterized in that the phase difference of the phase shift region with respect to the light-transmitting region is provided by forming a phase shifter layer either on a portion other than the light-transmitting region or a portion other than the phase-shift region in the transparent substrate.

11. The photomask according to claim 10, characterized in that the phase shifter layer is formed under the light-shielding film region.

12. The photomask according to claim 10, characterized in that the phase shifter layer is formed above the light-shielding film region.

13. A patterning method using the photomask according to

any one of claims 1 to 12, characterized in that it comprises the steps of:

forming a resist film on a substrate;

conducting pattern exposure to the resist film using the photomask; and

developing the resist film subjected to the pattern exposure so as to form a resist pattern.

14. The patterning method according to claim 13, characterized in that the step of conducting pattern exposure uses an oblique incidence illumination method.

15. The patterning method according to claim 13, characterized in that the resist film is formed from a positive resist.

16. A method for producing a photomask including an isolated light-shielding pattern formed on a transparent substrate that is transparent to a light source, the isolated light-shielding pattern being formed from a light-shielding film region and a phase shift region, characterized in that it comprises the steps of:

forming a light-shielding film on the transparent substrate;

patterning the light-shielding film so as to form a

contour of the light-shielding film region; and

removing a portion of the light-shielding film located in the phase shift region so as to form an opening,

the phase shift region has a phase difference with respect to a light-transmitting region of the transparent substrate, and

a width of the phase shift region is set such that a light-shielding property of the phase shift region becomes at least about the same as that of the light-shielding film having the same width.

17. The photomask producing method according to claim 16, characterized in that the step of forming the opening includes the step of etching, after forming the opening, a portion of the transparent substrate located under the opening such that a phase difference of (170 + 360 × n) to (190 + 360 × n) degrees (where n is an integer) with respect to a wavelength of the light source is provided between the portion and the light-transmitting region.

18. The photomask producing method according to claim 17, characterized in that the step of forming the opening is conducted prior to the step of forming the contour of the light-shielding film region.

19. The photomask producing method according to claim 16, characterized in that the step of forming the contour of the light-shielding film region includes the step of etching, after forming the contour of the light-shielding film region, a portion of the transparent substrate located outside the light-shielding film region such that a phase difference of (170 + 360 × n) to (190 + 360 × n) degrees (where n is an integer) with respect to a wavelength of the light source is provided between the portion and the phase shift region.

20. The photomask producing method according to claim 16, characterized in that

the step of forming the light-shielding film includes the step of forming under the light-shielding film a phase shifter layer that provides phase inversion of (170 + 360 × n) to (190 + 360 × n) degrees (where n is an integer) with respect to a wavelength of the light source, and

the step of forming the opening includes the step of removing, after forming the opening, a portion of the phase shifter layer located under the opening.

21. The photomask producing method according to claim 20, characterized in that the step of forming the opening is conducted prior to the step of forming the contour of the light-shielding film region.

22. The photomask producing method according to claim 16, characterized in that

the step of forming the light-shielding film includes the step of forming under the light-shielding film a phase shifter layer that provides phase inversion of $(170 + 360 \times n)$ to $(190 + 360 \times n)$ degrees (where n is an integer) with respect to a wavelength of the light source, and

the step of forming the contour of the light-shielding film region includes the step of removing, after forming the contour of the light-shielding film region, a portion of the phase shifter layer located outside the light-shielding film region.

23. The photomask producing method according to claim 22, characterized in that the step of forming the contour of the light-shielding film region is conducted prior to the step of forming the opening.

24. The photomask producing method according to claim 16, characterized in that

the step of forming the opening is conducted prior to the step of forming the contour of the light-shielding film region,

the method further comprising, between the step of

forming the opening and the step of forming the contour of the light-shielding film region, the step of forming on the transparent substrate a phase shifter layer that provides phase inversion of (170 + 360 × n) to (190 + 360 × n) degrees (where n is an integer) with respect to a wavelength of the light source, and

the step of forming the contour of the light-shielding film region includes the step of removing, before forming the contour of the light-shielding film region, a portion of the phase shifter layer located outside the light-shielding film region.

25. The photomask producing method according to claim 16, characterized in that

the step of forming the contour of the light-shielding film region is conducted prior to the step of forming the opening,

the method further comprising, between the step of forming the contour of the light-shielding film region and the step of forming the opening, the step of forming on the transparent substrate a phase shifter layer that provides phase inversion of (170 + 360 × n) to (190 + 360 × n) degrees (where n is an integer) with respect to a wavelength of the light source, and

the step of forming the opening includes the step of

removing, before forming the opening, a portion of the phase shifter layer located in the phase shift region.

26. The photomask producing method according to claim 16, characterized in that, provided that the phase shift region has a width Wm, $Wm . (0.4 \times \lambda /NA) \times M$ (where λ is a wavelength of the light source, NA is a numerical aperture of a reduction projection optical system of an aligner, and M is a magnification of the reduction projection optical system).

27. The photomask producing method according to claim 16, characterized in that, provided that the light-shielding pattern has a width Lm, $Lm . (0.8 \times \lambda /NA) \times M$.

28. The photomask producing method according to claim 27, characterized in that, provided that the phase shift region has a width Wm, $Wm . ((0.8 \times \lambda /NA) \times M) - Lm$ and $Wm . Lm$.

29. The photomask producing method according to claim 27, characterized in that, provided that the phase shift region has a width Wm, $0.5 \times ((((0.8 \times \lambda /NA) \times M) - Lm)/2) . W . 1.5 \times ((((0.8 \times \lambda /NA) \times M) - Lm)/2)$ and $Wm . Lm$.

30. A method for producing pattern layout of a photomask including an isolated light-shielding pattern formed on a

transparent substrate that is transparent to a light source, the isolated light-shielding pattern being formed from a light-shielding film region and a phase shift region, characterized in that it comprises the steps of:

extracting from the patter layout corresponding to the light-shielding pattern a line pattern having a width $L \times M$ equal to or smaller than $(0.8 \times \lambda/NA) \times M$ (where λ is a wavelength of the light source, NA is a numerical aperture of a reduction projection optical system of an aligner, and M is a magnification of the reduction projection optical system); and

providing inside the extracted line pattern a phase shift region having a width $W \times M$ equal to or smaller than $((0.8 \times \lambda/NA) - L) \times M$ (where W . L).

31. The pattern layout producing method according to claim 30, characterized in that $0.5 \times (((0.8 \times \lambda/NA) - L)/2)$. W . $1.5 \times (((0.8 \times \lambda/NA) - L)/2)$ and W . L.

32. The pattern layout producing method according to claim 30, characterized in that

the step of extracting the line pattern includes the step of extracting a pattern corner or a pattern end from the pattern layout, and

the step of providing the phase shift region includes

the step of providing at or inside the extracted pattern corner, or at or inside the extracted pattern end, the phase shift region with four sides of $(0.5 \times \lambda/NA) \times M$ or less.

33. A method for producing mask-writing data of a photomask including an isolated light-shielding pattern formed on a transparent substrate that is transparent to a light source, the isolated light-shielding pattern being formed from a light-shielding film region and a phase shift region, characterized in that it comprises the step of:

extracting from pattern layout corresponding to the light-shielding pattern a line pattern having a width $L \times M$ equal to or smaller than $(0.8 \times \lambda/NA) \times M$ (where λ is a wavelength of the light source, NA is a numerical aperture of a reduction projection optical system of an aligner, and M is a magnification of the reduction projection optical system), and providing inside the extracted line pattern the phase shift region having a width $W \times M$ equal to or smaller than $((0.8 \times \lambda/NA) - L) \times M$ (where W . L) so as to maximize a light-shielding effect of the light-shielding pattern, and thereafter, adjusting a dimension of the phase shift region based on a result of test exposure or exposure simulation.

34. The mask-writing data producing method according to claim 33, characterized in that the step of adjusting the

dimension of the phase shift region includes the step of reducing a width of the phase shift region corresponding to a portion having a pattern width larger than a design value as a result of exposure with the photomask, and increasing a width of the phase shift region corresponding to a portion having a pattern width smaller than the design value as a result of exposure with the photomask.